

**COATING COMPOSITION INCLUDING A WATER-BASED COPOLYMER  
CROSS-LINKING WITH A WATER-DISPERSIBLE CROSS-LINKING  
AGENT, METHOD OF PREPARING THE SAME,  
AND A CURED FILM THEREOF**

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**ABSTRACT OF THE DISCLOSURE**

The present invention is directed to a curable, water-based coating composition utilized in waterborne coating systems such as a waterborne primer system. The coating composition is the reaction product of a water-dispersible cross-  
10 linking agent and a water-based copolymer prepared by free-radical polymerization. The copolymer is the reaction product of a first block and a second block. The first block is the reaction product of a plurality of ethylenically unsaturated monomers. One of the ethylenically unsaturated monomers includes a functional group suitable for reaction with the cross-linking agent. The functional group in the first block is  
15 preferably a carbonate, carbamate, or hydroxyl functional group. Other monomers in the plurality include acrylic acid and methyl methacrylate. The first block is also the reaction product of a vinylaromatic hydrocarbon monomer such as diphenylethylene. The second block is the reaction product of a non-functional, ethylenically unsaturated monomer. Methods for preparing the coating composition and a cured  
20 film are also disclosed.